CESME

Production of PHA biopolymers (fully bio-based and 100% biodegradable) from different agro-food wastes and by-products through the BIO-ON technology

Presented by Bio-on

Point of contact
Bio-on S.p.A. Diego Torresan, Business Development Manager and Research Advisor
Brief Description of Good Practice
Development of technologies for the production of biopolymers PHA through the valorisation of agricultural and agro-industrial wastes and by-products. The final product PHA is a fully bio-based and 100% biodegradable both in soil and water products.
Problems/challenges and how they were overcome
Nowadays plastics are mainly produced from oil and gas and they do not degrade, consequently they pollute the environment with terrible bad impacts on environment, wildlife, fauna and flora, human beings. The worldwide increase in plastic waste has involved, within the global vision of environmental protection and sustainability, a great deal of action and strategies aimed at minimising the negative impact of the increasing production and consumption of polymer materials. Despite the efforts that have been made in the last decades, overall plastic waste volumes are tremendously growing around the world: actual and foreseen management of plastics waste remains a huge worldwide problem. The introduction into the increasing plastic market of new bioplastic as PHAs, not obtained from oil and biodegradable at the end of their useful life, can contribute to mitigate the consequences of the increasing use of plastics both from the raw material 'challenge' side and the end-life management. Bio-on aims to demonstrate the industrial production of biopolymer PHA, 100% biodegradable both in water and soil, a new generation of linear polyesters able to replace and improve traditional plastics, oil-based and not biodegradable (e.g. PE, PP, PC, PET and others) can overcome their negative effects and contributing to the protection and sustainable management of natural resources and ecosystems through a sustainable use of raw materials.
Impact from Good Practice
Being an IP company, Bio-on business idea is to supply technologies, know how, services to implement industrial plants for production of fully biodegradable plastics using sustainable raw materials (no food) and applying only natural processes within the sustainable limits of the planet natural resources and ecosystems. Through the facilities available today it was possible to:

- produce biopolymers PHA at pilot plant level demonstrating the scalability of the technology for the PHAs commercialisation considering the demands and needs of existing customers, the tremendous growing demand of supplies from emerging users and the several on-going research projects;
- scaling-up of the technology and create a worldwide “reference” plant and a “center of excellence” for the improvement of the industrial processes in the specific technical segment;
- create jobs in the Emilia Romagna region.

Lessons learnt from the Good Practice

The development of new segments of market could be a key issue.
To focus on the industrialisation and on the industrial impact of the initiative.
Never stop to improve the process elements to reduce the costs and become more competitive and possibly integrating them with other available.
Targeting the use at cascades of the resources.

Recommendation you want to stand

Wherever possible, to involve technical and industrial partners.
Study, understand and always monitoring the reference markets.
To convince and inspire the targeted users, both companies and stakeholders, by demonstrating the feasibility of the approach.

For more information

www.bio-on.it